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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,602	11/24/2003	David A. Glocker	188941	4233

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Neal L Slifkin
HARRIS BEACH LLP
99 Gamsey Road
Pittsford, NY 14534

EXAMINER

MCDONALD, RODNEY GLENN

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 09/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,602

Applicant(s)

GLOCKER ET AL.

Examiner

Rodney G. McDonald

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hollstein (U.S. Pat. 6,113,752) in view of Szcyrbowski et al. (U.S. Pat. 5,415,757).

Regarding claim 1, Hollstein teach a system for sputter coating a film of material onto a substrate. The system includes an array including first and second unbalanced magnetrons having the same north and south magnetic polarities and being arranged in mirror configuration defining a space for receiving the substrate therebetween such that like poles are opposed without magnetic coupling between the magnetrons in the array. Each of the magnetrons include an electrode target formed of the material. (See Fig. 1;

Column 4 lines 60-67; Column 5 lines 1-24) The sputtering can be carried out with alternating current. (Column 3 lines 49-53)

Regarding claim 5, Hollstein teach utilizing a reactive gas for forming compound layers. (Column 5 lines 27-33)

Regarding claim 6, Hollstein teach that the magnetrons can be planar magnetrons. (See Fig. 1)

The difference between Hollstein and the present claims is that utilizing an alternating current source connected between the first and second electrode targets for alternately energizing the targets as cathodes and anodes is not discussed (Claim 1), the frequency of the alternation is a radio frequency is not discussed (Claim 4) and the use of cylindrical magnetrons is not discussed (Claim 7).

Regarding claim 1, Szcyrkowski et al. teach alternately energizing the targets as cathodes and anodes with AC voltage. (Column 3 lines 44-50; Column 5 lines 23-29) Szcyrkowski et al. teach that the arrangement of the cathodes can be opposite one another with a substrate at the center. (Column 6 lines 7-12)

Regarding claim 4, Szcyrkowski et al. teach that the frequency of alternation is a radio frequency. (Column 5 lines 65-68)

Regarding claim 7, Szcyrkowski et al. teach that the cathodes can be tubular. (i.e. cylindrical). (Column 6 line 17)

The motivation for utilizing an alternating current source connected between the first and second electrode targets for alternately energizing the targets as cathodes

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and anodes, utilizing a radio frequency and utilizing cylindrical magnetrons because it allows for preventing arcing. (Column 2 lines 53-62)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hollstein by utilizing an alternating current source connected between the first and second electrode targets for alternately energizing the targets as cathodes and anodes, utilizing a radio frequency and utilizing cylindrical magnetrons as taught by Szcyrbowski et al. because it allows for preventing arcing.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hollstein in view of Szcyrbowski et al. as applied to claims 1 and 4-7 above, and further in view of Window et al. "Charged particle fluxes from planar magnetron sputtering sources", J. Vac. Sci. Technol. A 4(2), Mar/Apr 1986, pg. 196-202.

The differences not yet discussed is where the north pole piece has a larger magnetic cross-section than the south pole pieces (Claim 2) and where the south pole pieces has a larger magnetic cross-section than the north pole piece (Claim 3).

Regarding claim 2, Window et al. teaches a type I unbalanced magnetron where the north pole piece is larger than a magnetic cross-section than the south pole piece. (See Page 196, 197; Figs 1 and 2)

Regarding claim 3, Window et al. teaches a type II unbalanced magnetron where the south pole piece is larger than the north pole piece. (See Page 196, 197; Figs. 1 and 2)

The motivation for utilizing an unbalanced magnetron is that it allows for controlling ion bombardment of the depositing film. (See abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a magnetron with the north pole piece having a larger magnetic cross-section than the south pole pieces or where the south pole pieces has a larger magnetic cross-section than the north pole piece as taught by Window et al. because it allows for controlling ion bombardment of the depositing film.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 6,733,642.

Although the conflicting claims are not identical, they are not patentably distinct from

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each other because U.S. Pat. 6,733,642 teach a system for sputter coating a film of material onto a substrate, comprising: a) an array including first and second unbalanced magnetrons having the same north and south magnetic polarities and being arranged in mirror configuration defining a space for receiving said substrate therebetween such that like poles are opposed, each of said magnetrons including an electrode target formed of said material; b) a first alternating current and voltage power source electrically connected to said first and second electrode targets for alternately energizing said targets as cathodes and anodes.

Claims 2 and 3 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 6,733,642 in view of Window et al. "Charged particle fluxes from planar magnetron sputtering sources", J. Vac. Sci. Technol. A 4(2), Mar/Apr 1986, pg. 196-202.

The differences not yet discussed is where the north pole piece has a larger magnetic cross-section than the south pole pieces (Claim 2) and where the south pole pieces has a larger magnetic cross-section than the north pole piece (Claim 3).

Regarding claim 2, Window et al. teaches a type I unbalanced magnetron where the north pole piece is larger than a magnetic cross-section than the south pole piece. (See Page 196, 197; Figs 1 and 2)

Regarding claim 3, Window et al. teaches a type II unbalanced magnetron where the south pole piece is larger than the north pole piece. (See Page 196, 197; Figs. 1 and 2)

The motivation for utilizing an unbalanced magnetron is that it allows for controlling ion bombardment of the depositing film. (See abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a magnetron with the north pole piece having a larger magnetic cross-section than the south pole pieces or where the south pole pieces has a larger magnetic cross-section than the north pole piece as taught by Window et al. because it allows for controlling ion bombardment of the depositing film.

Claims 4-7 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 6,733,642 in view of

The differences not yet discussed is the frequency of the alternation is a radio frequency is not discussed (Claim 4), the use of a reactive gas (Claim 5), and the use of cylindrical magnetrons is not discussed (Claim 7).

Regarding claim 4, Szcyrbowski et al. teach that the frequency of alternation is a radio frequency. (Column 5 lines 65-68)

Regarding claim 5, Szcyrbowski et al. teach utilizing a reactive gas. (Column 2 lines 56)

Regarding claim 7, Szcyrbowski et al. teach that the cathodes can be tubular. (i.e. cylindrical). (Column 6 line 17)


The motivation for utilizing a radio frequency, a reactive gas and utilizing cylindrical magnetrons because it allows for preventing arcing. (Column 2 lines 53-62)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a radio frequency, a reactive gas and utilizing cylindrical magnetrons as taught by Szczyrkowski et al. because it allows for preventing arcing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Rodney G. McDonald
Primary Examiner
Art Unit 1753

RM
September 7, 2006